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ABSTRACT

In an effort to determine success in fostering student development as well-rounded human beings, Northwestern Michigan College (NMC) undertook a study of student achievement related to significant learning outcomes established by the college. The study focused on four measures of achievement: results from a spring 1995 administration of the Collegiate Assessment of Academic Proficiency (CAAP), results from a spring 1995 American College Testing College Outcomes Survey (COS) report, an NMC plan for assessing academic achievement, and outcomes from an Instructional Development and Effectiveness Assessment (IDEA) conducted from 1990 to 1995. Study findings included the following: (1) on the CAAP, NMC students scored above the national mean in each of four academic skills (i.e., writing, mathematics, reading, and critical thinking); (2) regarding the COS, the learning outcome ranked highest by students was acquiring knowledge and skills needed for a career, while this outcome was also ranked highest in terms of students' self-assessment of progress; (3) NMC's assessment plan will be implemented over the coming year; and (4) with respect to the IDEA, students consistently rated their learning in 10 areas (i.e., gaining factual knowledge, learning principles and theories, developing professional skills, learning a discipline's methodology, improving thinking and problem solving skills, developing creative capacities and effective communication skills, gaining a general, liberal education, developing personal responsibility, and furthering self-understanding) higher than the system-wide norm. Results from the COS and CAAP are appended. (MAB)

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Northwestern Michigan College

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NMC Ends Report

SIGNIFICANT LEARNING OUTCOMES

September 1995

JC 950 464

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SIGNIFICANT LEARNING OUTCOMES

TABLE OF CONTENTS

Policy and Purpose 1

Mearsurement Area 1 (CAAP) 2

Measurement Area 2 (ACT Outcomes Survey) 3

Measurement Area 3 (NCA-Approved Report) 4

Measurement Area 4 (IDEA Summary) 5

NMC Standards of Performance 11

Strategies for Improvement 11

Summary of 26 Student Outcomes Rankings . . . . . Appendix

ASSET-CAAP Comparison for 1994 . . . . . Appendix

NORTHWESTERN MICHIGAN COLLEGE

INDICATORS OF SUCCESS
SIGNIFICANT LEARNING OUTCOMES
Annual Progress Report
SEPTEMBER 1995

Significant Learning Outcomes Policy

Northwestern Michigan College will help students realize their full potential and will foster their development as well-rounded human beings who are able to think independently, to communicate clearly, to speculate intelligently, to access and generate knowledge, and to channel that knowledge to enhance the public good.

Purpose of Report

This report provides recent evidence of how well NMC students are realizing the qualities spelled out in the policy above. It is therefore an indication of how well our instructional efforts and student support services are achieving their goals. This report also provides an update on the planning activities of the Significant Learning Outcomes Team and other groups within Educational and Student Services.

Because this is the first annual report under the Board Ends Policy provisions, it will be almost entirely focused on the evidence currently available for assessing learning outcomes. It will describe other means for taking stock that are now under development, but only in general, tentative terms. And it will postpone a discussion of specific strategies for improvement until the Team has had time for additional training, conferencing with other teams, and prioritizing the areas where our efforts should be concentrated.

The four areas of measurement that will serve as indicators of Significant Learning Outcomes are:

1. Collegiate Assessment of Academic Proficiency (CAAP) Report
2. American College Testing College Outcomes Survey Report
3. North Central Association-Approved Student Outcomes Assessment Report
4. IDEA Learning Outcomes Summary

It should also be noted that evidence of significant learning while at NMC is also provided by findings to be reported by the Academic Transfer Team and the Successful Student Placement Team.

Measurement Area 1: Collegiate Assessment of Acdemic Proficiency (CAAP) Report

NMC was involved in the original development and field testing of this ACT assessment tool and has since continued to refine methods of sampling students and administering the academic proficiency tests most closely linked with our educational mission statements.

Conducted on an annual basis, this assessment measure requires that students with over thirty semester hours schedule a session for a test in one of the following skills: Writing, Mathematics, Reading, or Critical Thinking. Students are given one of the four tests randomly, which means that approximately one quarter of the entire group will be tested in any one academic skill. The results of these tests are returned to each student, used to compile an NMC summary report, and figured into the computation of national means. For three of the four skills (Critical Thinking is excluded), comparisons are made with students' skill levels when entering NMC, as indicated on their ASSET tests.

Plans are set to include the CAAP results on students' permanent transcripts. However, the results do not affect graduation status or academic standing of individual students. The dominant emphasis in this testing program is on institutional effectiveness, but the results may also help students redirect their studies to strengthen weaknesses.

Current Status

The results for the most recent CAAP assessment (Spring 1995) reflect a sampling of 256 students from a cohort of approximately 325 individuals who met two criteria: over thirty hours of NMC credit and ASSET scores from at least six months prior. The national means listed below also show the total number of community college students tested nationwide.

Percentile Means

	NMC	National
Writing Skills	**64.0**	**62.4**
n=64		**n=18,704**
Mathematics	**59.0**	**56.2**
n=58		**n=14,144**
Reading	**61.6**	**61.0**
n=67		**n=14,064**
Critical Thinking	**62.2**	**61.1**
n=67		**n=12,909**

Note: At the time of this report, the 1995 ASSET-CAAP longitudinal comparisons have not been processed by ACT and are therefore unavailable. However, this comparison data is available in a copy of a Student Outcomes Assessment memo included as the second document in the appendix. Also, the national means for ASSET scores, though on record with ACT, are not included in this report but will be used in helping to determine NMC's standards of performance for this indicator.

Conclusions:

As in nearly all past CAAP summaries, NMC students have scored above the national mean in each of the four academic skills. This is encouraging evidence of the relative strength of NMC's student performance. However, plans must be developed for increasing the sample size for each skill test and determining standards by which to gauge future success. In addition, the team will establish an appropriate time interval for making a series of ASSET-CAAP comparisons to analyze trends. Also, the team will use national means for ASSET to help adjust the gains made between ASSET and CAAP in these comparisons.

Measurement Area 2: ACT College Outcomes Survey Report

Once a year, the same group of students selected for the CAAP testing program complete a detailed survey that rates their progress toward various educational goals while at NMC. Most recently, for example, in Spring 1995, this meant that 238 of the 256 students who took the CAAP test completed the Outcomes Survey. In this survey, how important each goal is to students and how much they believe their NMC experience contributed to their progress toward this goal are measured and compared.

Though not a direct measure of academic skill or occupational competence, this self-assessment instrument provides one of the most telling indicators of students' growth after a year or more of NMC study. It also helps round out the "multiple measures" approach to assessment, as mandated by NCA. Because it is an annual assessment activity, the Indicator Team can track these outcomes over time and monitor trends.

Current Status

The outcomes from the Spring 1995 survey are summarized here:

Importance of and Progress Toward Attaining Outcomes at NMC

The six most important learning outcomes, as ranked by the 238 students surveyed, are listed on the next page, followed by how students ranked them in terms of the progress they felt they had made towards these outcomes while at NMC. The full list of 26 outcomes and their rankings are included in the appendix.

Importance Rank	Learning Outcome	Progress Rank
1	Acquiring knowledge and skills needed for career	1
2	Becoming competent in my major	3
3	Learning to think and reason	2
4	Developing problem-solving skills	5
5	Listening to and understanding what others say	8
6	Effectively using technology (computers, etc.)	13

The comparison of importance rank and progress rank for the all 26 learning outcomes is analyzed more completely in the full ACT Outcomes Survey Report.(See also the appendix.)

Conclusions

With the exception of the outcome ranked sixth for importance (Effectively using technology), there is very close correspondence between how important students think these outcomes are and how much they felt NMC contributed to their progress toward them. Because students feel that knowing how to use technology is an important learning goal, and because it ranked thirteenth among 26 items in progress, this learning objective needs to be addressed when the team develops its standards and strategies for improvement.

Measurement Area 3: North Central Association-Approved Outcomes Report

After over four years of study, the Student Outcomes Assessment Committee submitted its plan for assessing student academic achievement to NMC's Board of Trustees (February 1995) and to the North Central Association's Commission on Higher Education (March 1995). North Central approved the plan in June of this year, assuring NMC's top accreditation status through the year 2000.

This comprehensive plan (See the separate document, "Signs and Symbols: Assessment Strategies at Northwestern Michigan College") includes both the measures described in this report and many others that are conducted at the divisional level across the disciplines. These range from pre- and post-testing in individual courses, to committee review of students' formal written work, portfolio assessment, state and national certification results, and division-specific student questionnaires. Unlike the nationally normed instruments that provide external comparisons, these efforts aim more directly at what students have done in meeting Core and program requirements.

Current Status

The academic divisions are in various stages of completing and implementing their assessment strategies. Although some divisions have measurement data as part of ongoing annual assessment, the Indicator Team has not yet had time to begin the process of selecting and compiling this information in its first annual report. Planning this process and prioritizing strategies based on the findings will be the major activity of the team over the next year.

Conclusions

No conclusions have been made for this report.

Measurement Area 4: Instructional Development and Effectiveness Assessment (IDEA) Learning Summary

When individual courses are evaluated each year, students complete ten items that rate their level of learning in the course. Because IDEA is course-specific, its primary use is for evaluating faculty performance and improving instruction course by course. It is therefore a complement to the annual Student Outcomes Survey described above. But because the individual course data is pooled and normed both locally and throughout the nation among colleges using IDEA, it also provides a sound method for measuring NMC's educational effectiveness--as perceived by students while still immersed in the process of learning.

NMC has been conducting this assessment measure for over ten years, making it an excellent indicator of sustained success (or need for improvement).

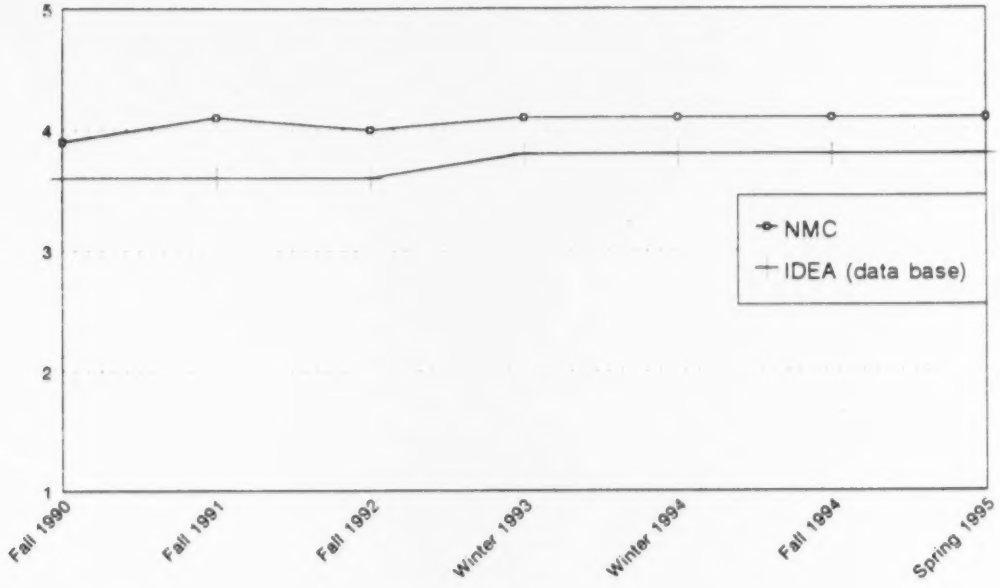
Current Status

The most recent IDEA measurement was taken Spring Semester, 1995. On the next pages, a series of ten charts (one for each learning outcome as indicated in the chart title) shows this spring's results and those for the previous six semesters or terms. Each chart indicates the level of the system wide means and NMC's means on a five-point scale, with five being strong favorable rating by students in the course, 1 being the lowest rating.

Subject Matter Mastery

Gaining Factual Knowledge - Essential or Important

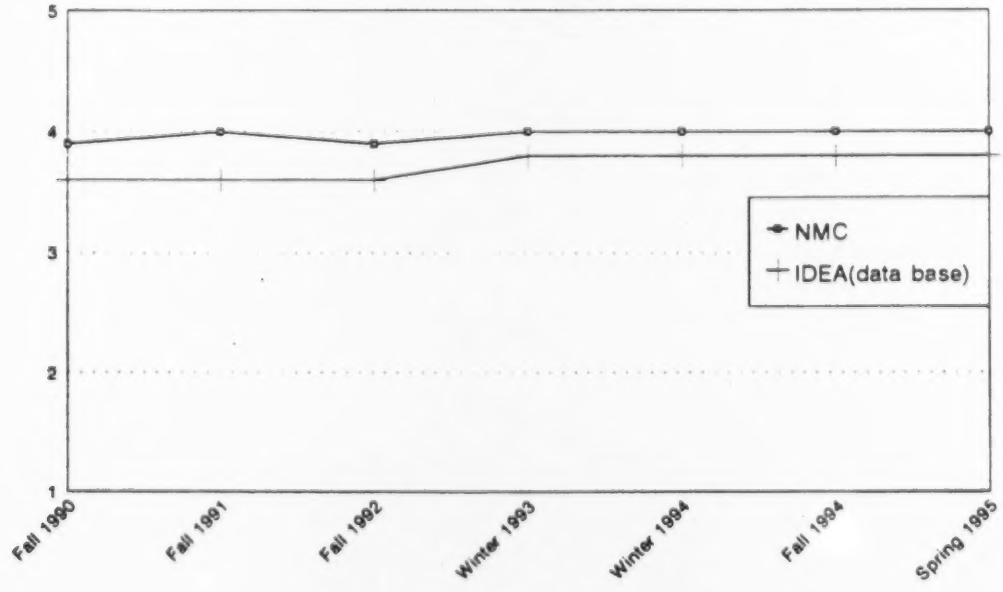
[Gaining factual knowledge (terminology, methods, classification, trends).]



Subject Mastery

Learing Principles & Theories - Essential or Important

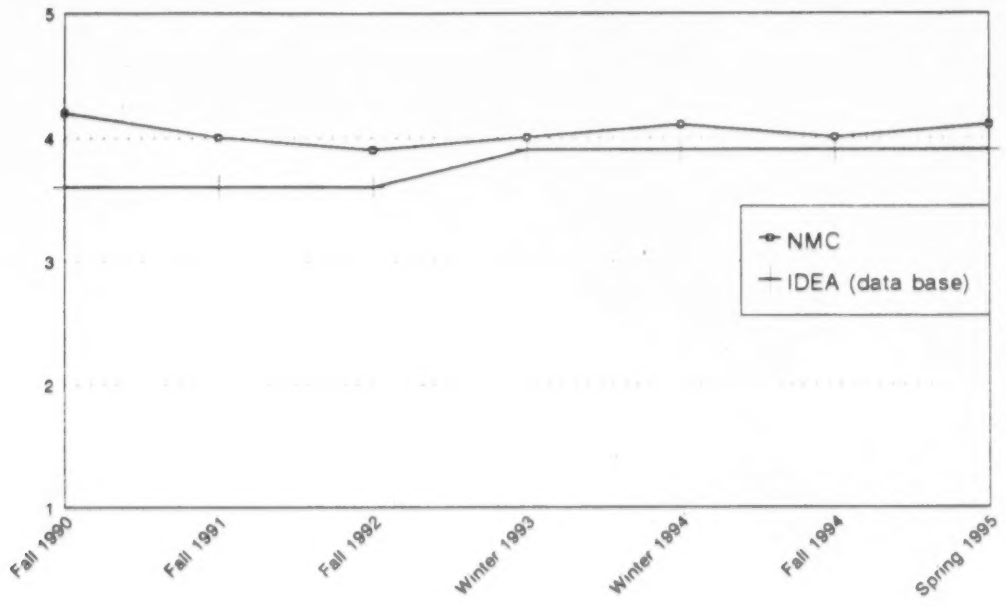
[Learning fundamental principles, theories, or generalizations.]



Subject Matter Mastery

Developing Professional Skills - Essential or Important

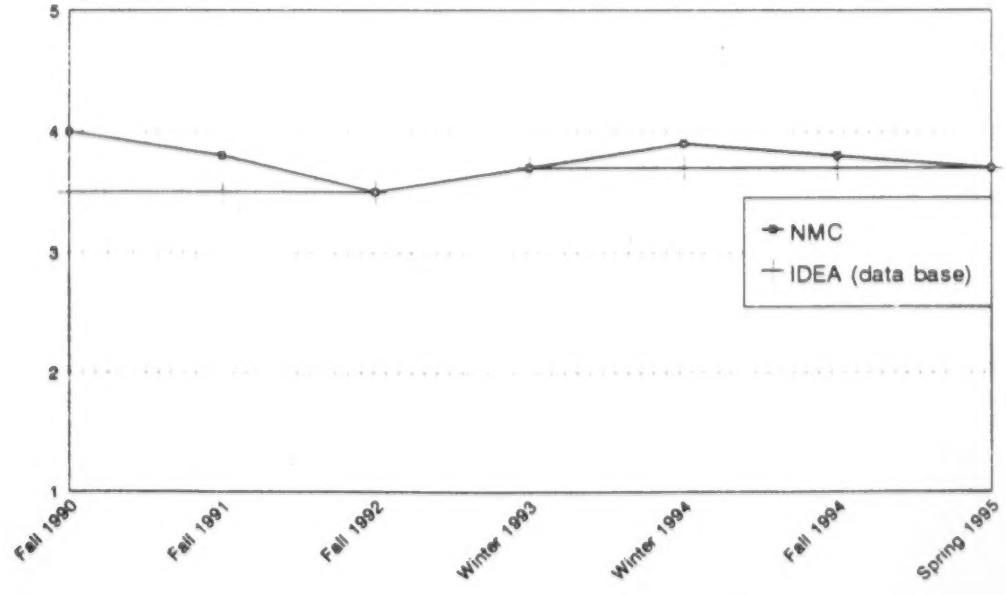
[Developing specific skills, points of view, and competencies needed by professionals in the field.]



Subject Matter Mastery

Learning the Process of the Discipline's Method - Essential or Important

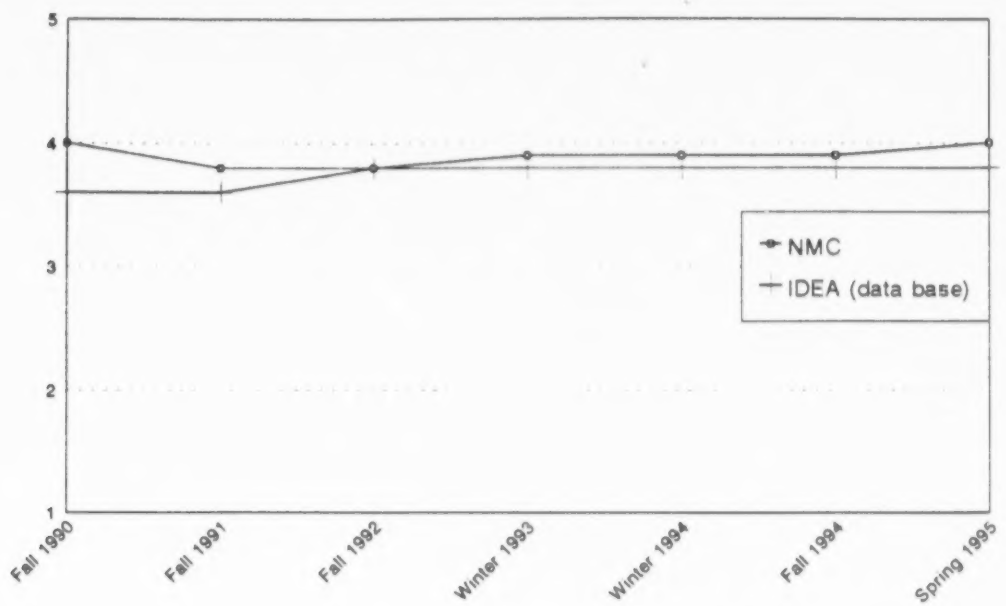
[Learning how professionals in this field go about the process of gaining knowledge.]



Development of General Skills

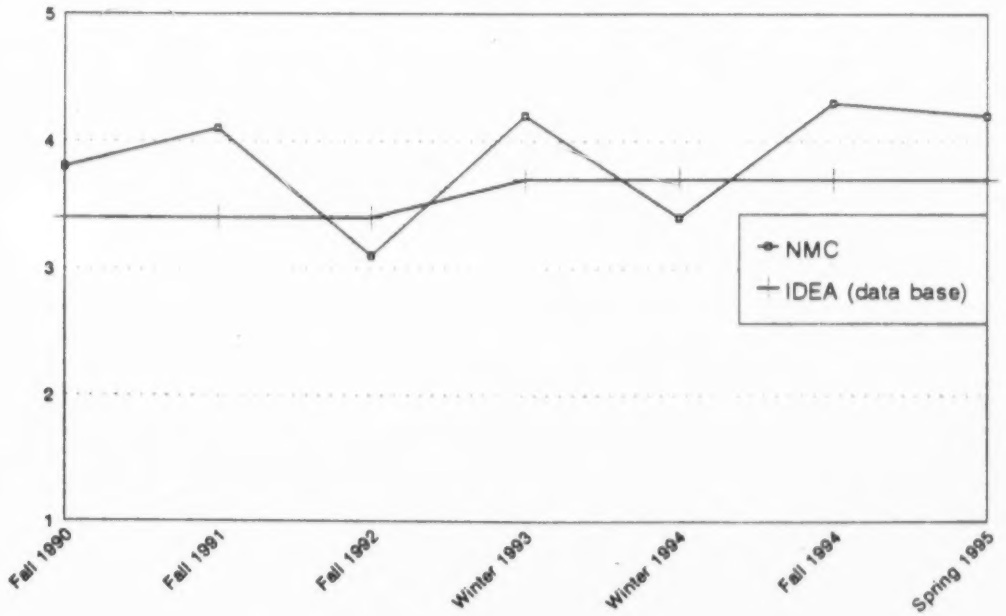
Improving Thinking & Problem Solving Skills - Essential or Important

[Learning to apply course material to improve decision making, rational thinking, problem solving]



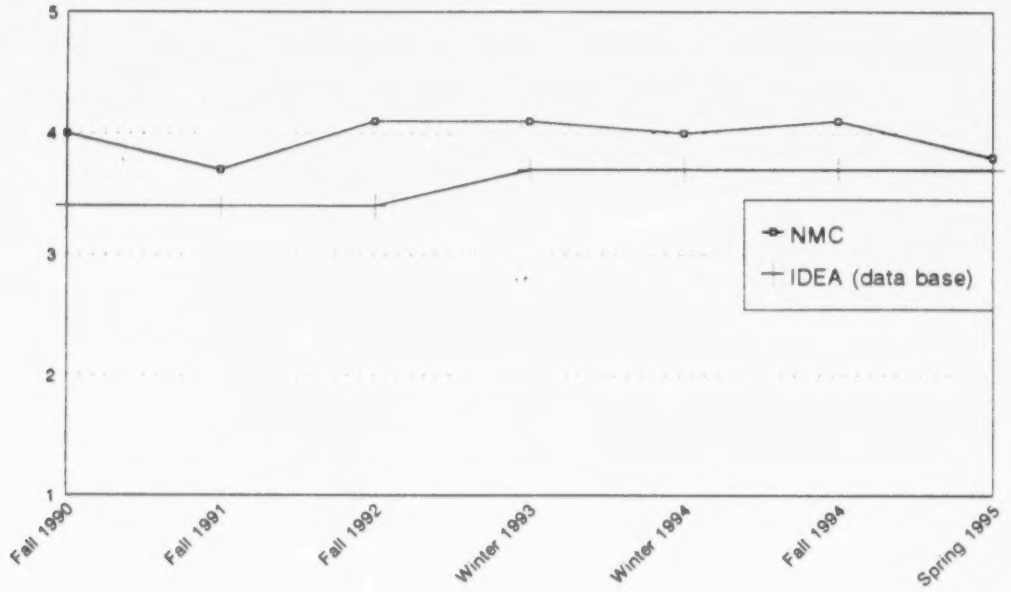
Development of General Skills

Developing Creative Capacities - Essential or Important



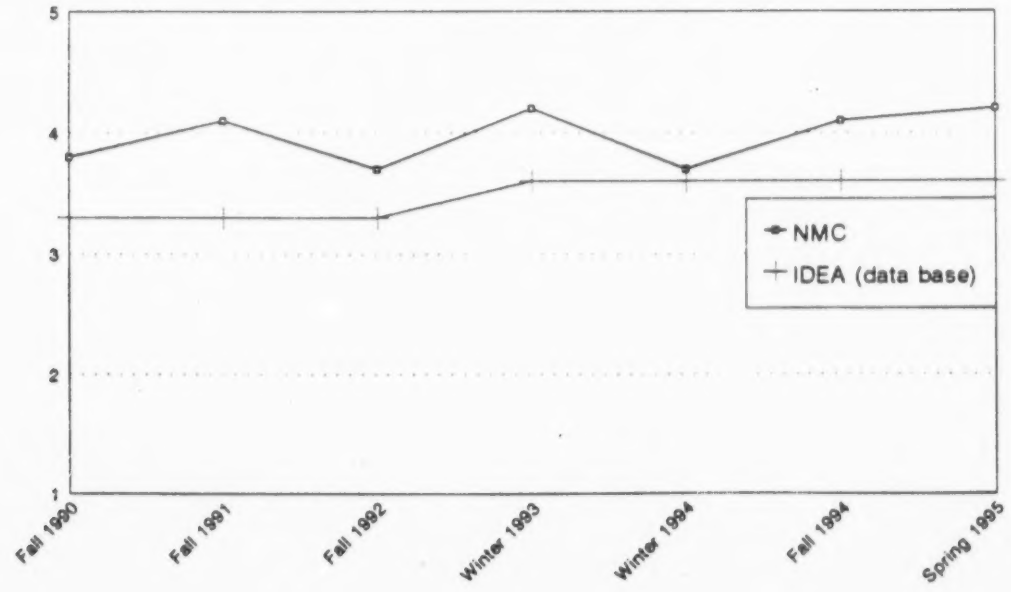
Development of General Skills

Developing Effective Communication Skills - Essential or Important
[Developing skill in expressing myself orally or in writing.]



Personal Development

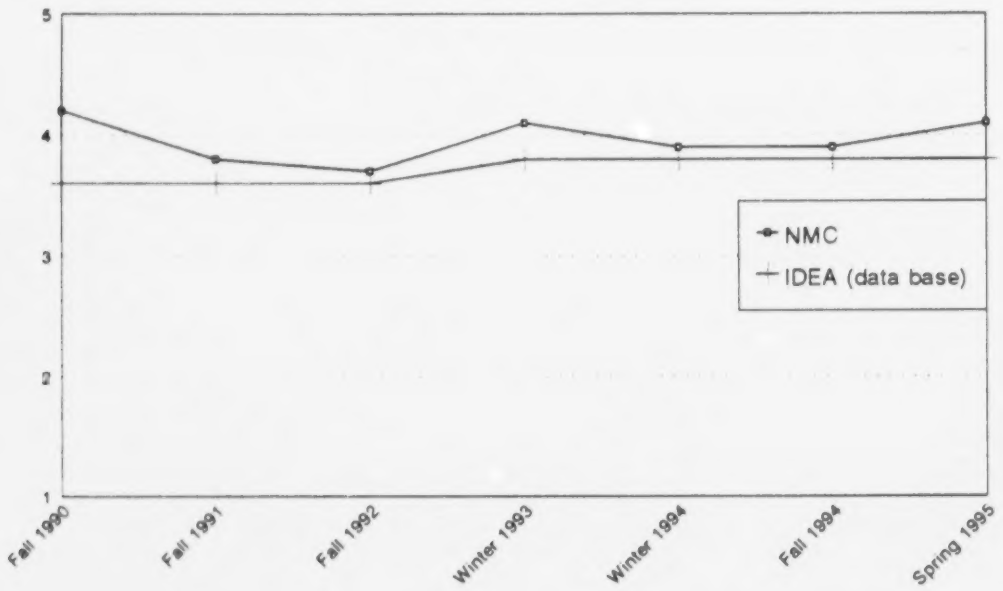
Gaining a General Liberal Education - Essential or Important
[Gaining a broader unerstanding and appreciation of intellecutal-cultural activity.]



Personal Development

Developing Personal Resposibility - Essential or Important

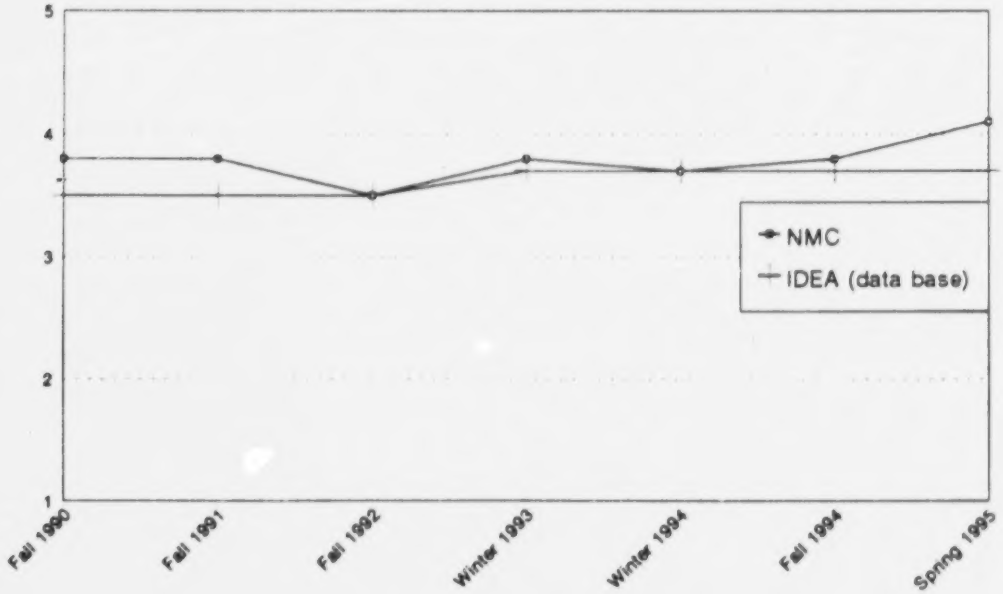
[Developing a sense of personal responsibility (self-reliance, self-discipline).]



Personal Development

Discovering Implication for Self Understanding - Essential or Important

[Discovering the implications of the course for understanding myself (interests, values, talents)]



Conclusions

It is obvious that students consistently rate their learning in these ten areas higher than the system-wide norm. In some cases the NMC margin over the system norm is truly impressive (margins of .4 or .5 on a 5-point scale clearly representing strong performance). In a few cases, NMC matched the system-wide mean, and in only two cases did NMC fall below the system-wide mean--Developing Creative Capacities in Fall 1992 and Winter 1994. Of greatest significance in watching for evidence of improvement, all but one of the Spring 1995 outcomes came in higher for NMC than the system-wide means, and that single exception matched the system mean for the outcome "Learning the process of a discipline's methods."

The task for this Indicator Team is to establish meaningful standards for the IDEA measure, then analyze recent trends to prioritize strategies for making improvements if and where they are needed. This will be included in the Team's work for 1995-96.

NMC Standards of Performance

As explained in the conclusions for each measurement area, the Significant Learning Outcomes Team will use the coming year to determine what standards NMC should meet. Because several of the indicators of student learning are numerical and are norm-referenced, setting a standard is an extremely sensitive process, if the standard is to be valid and realistic.

Strategies for Improvement

Strategies for improvement will be developed following the determination of standards. The Team expects to have at least three of the standards and preliminary strategies on paper by December 1995.

Prepared by Jack Berman, David Donovan, Dianne Keelan, and John Pahl.

Appendix

Item 1: Twenty-six Student Outcomes
ACT Survey Results, 1995

Item 2: ASSET-CAAP Comparisons
Assessment Committee Memo, Nov. 1994

NORTHWESTERN MICHIGAN COLLEGE TRAVERSE CITY, MICHIGAN CODE 2040

SECTION II SUMMARY: COLLEGE OUTCOMES

PART A: IMPORTANCE OF AND PROGRESS TOWARD ATTAINING OUTCOMES AT THIS COLLEGE

*** IMPORTANCE *** OF ATTAINING OUTCOMES			*** RANKED BY IMPORTANCE *** TOTAL SCORED: 239		PROGRESS AT THIS COLLEGE		
RANK	AVG*	N FOR AVG	ITEM NO.	ITEM TEXT	RANK	AVG**	N FOR AVG
1	4.65	238	14	ACQUIRING KNOWLEDGE AND SKILLS NEEDED FOR A CAREER	1	3.92	238
2	4.64	237	15	BECOMING COMPETENT IN MY MAJOR	3	3.79	236
3	4.40	237	3	LEARNING TO THINK AND REASON	2	3.82	238
4	4.29	238	2	DEVELOPING PROBLEM-SOLVING SKILLS	5	3.57	237
5	4.18	238	11	LISTENING TO AND UNDERSTANDING WHAT OTHERS SAY	8	3.55	238
6	4.18	238	24	EFFECTIVELY USING TECHNOLOGY (E.G., COMPUTERS, HIGH-TECH EQUIPMENT)	13	3.42	238
7	4.14	238	1	DRAWING CONCLUSIONS AFTER WEIGHING EVIDENCE, FACTS, AND IDEAS	4	3.62	238
8	4.11	237	5	THINKING OBJECTIVELY ABOUT BELIEFS, ATTITUDES, AND VALUES	6	3.57	238
9	4.09	238	21	LEARNING ABOUT CAREER OPTIONS	16	3.29	237
10	4.04	237	20	DEVELOPING EFFECTIVE JOB-SEEKING SKILLS (E.G., INTERVIEWING, RESUME CONSTRUCTION)	24	2.98	236
11	4.04	238	10	FURTHER DEVELOPING MY STUDY SKILLS	14	3.42	238
12	4.03	238	9	SPEAKING MORE EFFECTIVELY	20	3.18	238
13	4.02	238	4	LOCATING, SCREENING, AND ORGANIZING INFORMATION	7	3.55	237
14	3.97	237	6	DEVELOPING MY CREATIVITY, GENERATING ORIGINAL IDEAS AND PRODUCTS	15	3.32	237
15	3.96	238	13	DEVELOPING OPENNESS TO NEW IDEAS AND PRACTICES	10	3.48	238
16	3.90	238	12	LEARNING TO FORMULATE AND RE-SHAPE MY LIFETIME GOALS	12	3.42	238
17	3.88	238	7	IMPROVING MY WRITING SKILLS	9	3.51	238
18	3.87	238	8	READING WITH GREATER SPEED AND BETTER COMPREHENSION	21	3.11	238
19	3.85	238	17	BROADENING MY INTELLECTUAL INTERESTS	11	3.43	237
20	3.73	237	22	APPLYING SCIENTIFIC KNOWLEDGE AND SKILLS	17	3.27	237
21	3.72	238	19	LEARNING PRINCIPLES FOR IMPROVING PHYSICAL AND MENTAL HEALTH	23	3.01	237
22	3.68	238	18	DISCOVERING PRODUCTIVE AND REWARDING USES OF MY TALENTS AND LEISURE TIME	22	3.02	238
23	3.55	238	25	LEARNING ABOUT THE ROLE OF SCIENCE AND TECHNOLOGY IN SOCIETY	18	3.21	238
24	3.54	237	26	UNDERSTANDING AND APPLYING MATH CONCEPTS AND STATISTICAL REASONING	19	3.19	238
25	3.41	238	23	LEARNING PRINCIPLES FOR CONSERVING AND IMPROVING THE GLOBAL ENVIRONMENT	26	2.79	238
26	3.21	238	16	APPRECIATING THE FINE ARTS, MUSIC, LITERATURE, AND THE HUMANITIES	25	2.95	238

* IMPORTANCE AVERAGES ARE BASED ON A 5-POINT SCALE WHERE 5=VERY GREAT, 4=GREAT, 3=MODERATE, 2=LITTLE, AND 1=NONE. BLANKS WERE OMITTED FROM THE CALCULATION OF AVERAGES.

** PROGRESS AVERAGES ARE BASED ON A 5-POINT SCALE WHERE 5=VERY MUCH, 4=MUCH, 3=MODERATE, 2=LITTLE, AND 1=NONE. BLANKS WERE OMITTED FROM THE CALCULATION OF AVERAGES.

NOTE: SEE DETAIL PAGES 53-78 CONTAINING ANALYSES OF RESPONSES FOR THE OVERALL TOTAL AND FOR EACH OF THE SELECTED SUBGROUPS.

TO: Student Outcomes Assessment Committee
FROM: John Pahl
DATE: Nov. 10, 1994
SUBJ: Summary of most recent CAAP results and related thoughts

In June, ACT sent a thick packet of information following our most recent administration of CAAP. For the first time, the results included a longitudinal analysis, called ASSET-CAAP Institutional Cohort Report, as well as the CAAP scores and the student opinion Survey (a self-assessment inventory).

The longitudinal document is in a new reporting format, one that is fairly easy to interpret but only after the three pages of instructions are digested. To reduce any further demand on your time, I've pulled out some salient points and added a few impressions. Dave Donovan has also been through these same pages and will probably have some further ideas to add. Naturally, you may want to look at the report itself, including the 200 or so pages that go through the same results in a very finely textured fashion, looking at declared programs, age groups, etc.

General Results of CAAP

1. **NMC students are slightly above the National mean in Writing, Critical Thinking, and Math, but slightly below in Reading. (360 students tested)**

	NMC	Nat'l Mean
Writing	63.39	62.2
Critical Thinking	61.91	61.4
Mathematics	58.51	56.2
Reading	60.09	61.2

One year's results aren't enough for reaching conclusions. We need to get a baseline established. Then watch for trends.

2. **The 1994 test group, significantly larger, scored slighlty lower than the 1993 group, except in mathematics, which rose slightly.**

	1994	1993
Writing	63.39	64.02
Critical Thinking	61.91	63.63
Mathematics	58.51	57.89
Reading	60.09	62.51

The declines and increase may be a result of using a larger, more accurate group (360 vs. 270). In any case, the same principle applies: we need a set of years to see a pattern and to see whether changes of one or two points are significant.

Longitudinal Analysis Results

1. Mathematics

A total of 65% of those tested maintained their percentile ranking or improved it. (29% maintained level of performance; 36% improved.) Thirty-five percent performed at a lower level.

Given that there was no general math requirement in place over the years covered by this longitudinal comparison, the fact that 35% actually went down one or more deciles (10% levels) should not be surprising. The number staying at or improving their levels is encouraging. **(We should remember that maintaining a percentile level can still mean improving in actual performance, since presumably the entire national cohort has improved as well.)** After the CORE requirement is in place for several years, we'll be able to make an interesting comparison.

Among originally weaker students (lower than mean on ASSET), 65% increased their standing in decile level, and of those, 36% rose above the mean on the CAAP.

2. Reading

A total of 60% of those tested maintained their percentile ranking or improved it. (16% maintained level of performance; 44% improved.) Forty percent performed at a lower level.

We can't factor in motivation accurately until ACT provides the further analysis it has underway (using the students' indication of effort on CAAP). But a good guess for decline in reading scores might be motivation when taking CAAP. Since reading is required across the curriculum, and one would assume it might improve even if we weren't trying to work expressly on it, it's hard to believe that 40% of those tested actually read less well relative to a national norm than they did before two years at NMC. Obviously we have to be careful in drawing such conclusions (or we'll beg the entire question of testing in the first place). But the motivational issue can be addressed in two ways--ACT's analysis factoring in students' indication of effort and our own ingenuity in increasing their motivation, a process already begun this spring.

3. Writing

A total of 71% of those tested maintained their percentile ranking or improved it. (23% maintained level of performance; 48% improved.) Twenty-nine percent performed at a lower level.

The same cautions about motivation apply here (and for all of the scores from this last testing session). We should also emphasize that though ACT calls this "Writing," it's really editing of other people's writing.

Characteristics of the NMC Group

1. **Cohort Group**
   This testing session had a well defined cohort group, selected by credit hours earned and time frame for having taken ASSET. Unlike other groups in the national norm, we had a very high percent (91%) who began NMC as freshmen, thus increasing the accuracy (motivation at CAAP time aside) in determining our effect on their longitudinal changes.

2. **Age**
   Largest categories: (no National norms available.)
   19-20, 32.8%
   20-25, 25.3%
   26-30, 11.1%
   31-39, 17.5%

3. **Gender**
   Our female-male split is more balanced than the national norm, 56%-44%.

4. **Full- and Part-time**
   We had fewer full-time students tested, but not by much--NMC 73%; National 78%.

5. **Future Plans**
   Fewer of our students indicated transfer (30.8% vs. 46.6% nationally). More of our students indicated they would be returning to NMC 51.7% vs. 30% nationally.

6. **Field of Study**
   The six largest groups were:

Health professions	19.2%
Business	14.4%
Engineering	9.7%
Education	9.4%
Social Sciences	6.9%
Trade/Industrial	5.3%

The Outcome Survey
The students' opinions on what was most important to them educationally, how much they felt they improved while at NMC, and how much they felt the College contributed to those gains are very interesting and helpful. The full report should be reviewed by all whose programs are indirectly involved and by anyone involved in institutional effectiveness.

The following page provides a synopsis of just a few major summaries:

Items of most importance to students
Students ranked the following outcomes as the top six in what they hoped to attain while at NMC. Students then ranked them among the **top seven** in assessing their **progress in these outcomes while at NMC.** (There were twenty-six outcomes in all.)

1. Acquiring knowledge and skills needed for a career
2. Becoming competent in my major
3. Learning to think in my major
4. Developing problem-solving skills
5. Listening to and understanding what others say
6. Thinking objectively about beliefs, attitudes, and values

The top twelve items ranked by importance as outcomes (the six above plus the six that follow) were ranked in the **top sixteen as progress in outcomes while at NMC.**

7. Drawing conclusions after weighing evidence, facts, and ideas.
8. Speaking more effectively
9. Effectively using technology (e.g., computers, hi-tech equipment)
10. Further developing my study skills
11. Developing openness to new ideas and practices
12. Developing my creativity, generating new ideas and products

Implications for CORE
Students were generally favorable (3.40 -3.84 on a 5-point scale) in rating the positive effects on the required courses they took **outside their majors.** There were no negative scores on these items. (See page 10 of the Outcomes Survey.)
Such courses helped students "think about their majors in the context of a larger wold view," or "build a framework to organize my learning within and across areas of study," or "become a more independent and self-directed learner," this last earning the highest score. This may strengthen our belief in the wisdom of our CORE decisions. (See also the note below about "Math and statistics" growth.)

Personal Growth Assessment
These summaries are worth looking at but are not listed in my summary because of their detail. Here students assess the contribution made by NMC, inside and outside of class. Personal growth items include such things as "becoming academically competent," "clarifying my personal values," and "increasing my intellectual curiosity." **Ratings in these summaries were clearly favorable.**

Only Three Exceptions
The only personal growth items to receive less than a 3.0 rating were:

developing job seeking skills

understanding math and statistics (not a requirement when students were tested, i.e., before CORE began)

learning principles for improving global environment.

cc: Other Student Outcomes Assessment Comm. members, Shelley Merrill

Northwestern Michigan College

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